

# TOPAZ<sup>®</sup>64

Intelligent Portable Phased Array UT Instrument with TFM



# FEEL THE POWER WITH CODE COMPLIANT PAUT AND TOFD

Introducing the ultra-intelligent TOPAZ®64, a portable 64 channel phased array ultrasonic testing (PAUT) device with total focusing method (TFM) delivering faster, more reliable inspections.

## Smart Features for an Inspection Advantage

**Experience more UT power:** Fully integrated portable instrument, 64:128PR phased array configuration, and two separate conventional ultrasonic channels at 200V.

**Higher resolution for better performance:** High TFM resolution up to 1M points per frame.

**Fast TFM speed:** up to 110Hz for 65k points frame.

**Full inspection in one go:** With the multi-mode capability, TOPAZ64 can support two FMC or PWI acquisitions, up to 4 TFM per FMC/PWI, + PA + TOFD all at the same time.

**Improved probability of detection:** Bipolar pulsers provide more energy to penetrate through thick components. Offering the highest acquisition frequency in the Zetec product range.

**Save time and money:** Save raw A-Scan data for record-keeping compliance or TFM post-processing without the need to rescan.

## Powered by UltraVision Software

TOPAZ64 includes this powerful software onboard. Leverage one software platform across the entire family of Zetec UT products, saving valuable training time and enabling new levels of system synergies. Benefit from powerful features including:

- Embedded advanced focal law calculator with visual feedback
- Onboard volumetric merge and measurement tools
- Interactive help onboard the instrument
- Real-time high-resolution TFM
- Post-processed TFM from recorded elementary A-Scans
- 2D matrix arrays in pulse echo, pitch & catch, or multi-probe configurations
- Remote control capabilities



# CHALLENGING INSPECTIONS. EXCEED YOUR EXPECTATIONS.

Combines the power of 64 active channels for PAUT applications with the most advanced full matrix capture (FMC), total focusing method (TFM), and plane wave imaging (PWI) capabilities.

## Benefits

- Phased array up to 64/128PR with 2 UT channels at 200V
- FMC or PWI excitation with up to 64 elements
- Real-time high-resolution TFM
- Time-of-Flight-Diffraction (TOFD)
- Raw FMC data saved in encoded mode
- 307 mm (12-inch) high-resolution multi-touch display
- Maximum PRF of  $\leq 40$  kHz

## Featuring the latest TFM

TOPAZ64 is packed with smart features to handle all UT inspections in one portable package. It features the latest technologies in ultrasound including:

- Code Compliant 64 Channel Phased Array UT
- High Resolution FMC with up to 64 elements
- Real-Time TFM up to 1M Data Points per Frame
- Save RAW FMC data for TFM post-processing and analysis

## Applications

- Code compliant inspections on thick welds
- Corrosion mapping
- Composite inspections
- Complex component inspections
- Stainless steel welds using DMA (Dual Matrix Array) probes
- Friction stir welds
- Flange face corrosion

## Seamless Setup with Zetec Scanners and Probes

When any Zetec scanner such as the award-winning NDT PaintBrush, Weld Crawler, or probe is connected, TOPAZ64 can automatically recognize and preconfigure the inspection sequence accordingly, saving valuable time.

- Multiple scanning configurations: sector, linear, and compound.
- Two dedicated UT channel: separate conventional UT channel offer 200v pulser and works in P/E or P/C configurations for TOFD examinations



# SPECIFICATIONS

## INSTRUMENT

Dimensions (W x H x D)	278 x 343 x 158 mm (10.9 x 13.5 x 6.2 in)
Weight with 1 battery	9.1kg (20.0 lb)
Multi-touch display	307 mm (12.1 in) wide, 1024 x 768 pixels
Air intake	No
Hot swappable batteries	Yes
Storage	256 GB SSD
Data interfaces	Ethernet 1000 Base-T; 1 x USB 3.0; 3 x USB 2.0
Video output	HDMI
Phased Array connector	IPEX or ZPAC Connector
Instrument calibration	Compliant with ISO 18563-1/EN 12668-1

## ENVIRONMENTAL

IP rating	Designed for IP66
Operating temperature	-10C to 45C (14F to 113F)
Storage temperature range	-40C to 70C (-40F to 158F)
Relative humidity	80% non-condensing

## PHASED ARRAY

Phased Array Channels	64/128PR
UT Channels	2 P/E or 2 P/C
Amplitude Resolution	16 bits
Measurement Gates	4 + 1 synchronization gate (peak, crossing, autocrossing)
Maximum PRF	< 40 kHz
Data Compression	1, 2, 4, 8, 16
Max. Applied Voltage (50 ohms)	150Vpp PA UT (Bipolar) / 75V (Unipolar) / 200V UT
Bandwidth (-3 dB)	0.5 to 18 MHz PA; 0.5 to 25 MHz UT
Rectification	Digital
Filtering	Analog/Digital (FIR)
Smoothing (Video Filter)	Digital
Self-Check	Yes
Automated Probe Detection	Yes (with Zetec probe ID chip)
Focal Laws	1024 with unlimited groups
TFM Frame Size	Up to 1M points
TFM Frame Rate	Up to 110 Hz (65k points per frame resolution)
Maximum Number of Samples	16,384
Maximum Data File Size	2 GB; Unlimited for raw A-Scan data
Encoder Interfaces	3 quadrature-type

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